PROCEEDING

international seminar

STRATEGY TO MANAGE BIO-ECO-HEALTH SYSTEM FOR STABILIZING ANIMAL HEALTH & PRODUCTIVITY TO SUPPORT PUBLIC HEALTH

Surabaya-Indonesia, 19-20 June 2012
JW Marriott Hotel Surabaya

EDITORS:
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FACULTY OF VETERINARY MEDICINE - UNIVERSITAS AIRLANGGA
I-MHERE SUB-COMPONENT B.2.C PERFORMANCE BASED CONTRACT

H. Bambang Poernomo S
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ACKNOWLEDGEMENT

DEVELOPMENT OF THE FIVE ELEMENTS MODEL ON INTERACTION LIVER AND KIDNEY FUNCTION THROUGH BLOOD AS MEDIATOR USING EQUALLY PARAMETER

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ABSTRACT

The theory of the Five Elements on Traditional Chinese Medicine (TCM) was based on the idea that everything in the universe was the produce of movement and change of five basic elements. Liver represent Wood and Kidney represent Water. Purpose of the research was developed TCM model especially in its interaction of liver and kidney function through blood using equally parameter. Population Kacang Goat (Capra sp.) consists of 15 males and females were administered blood samples 5 cc each. Blood was obtained on SGOT, SGPT, total erythrocyte, PCV, Hb, BUN, creatinin, and protein. Model was evaluated through loading factor analysis, average variance extracted value (AVE), Cronbac'h Alpha, and t test. Model was significantly difference if loading factor more than 0,5; AVE value for each construct variable > correlation between constructs; Cronbac'h Alpha ≥ 0,70; and $t_{statistic} > t_{table}$ on á = 5%. Result of the research shown AVE value for all variable i.e. kidney, liver, and blood, respectively, was more than 0,5 and √AVE > correlation between variables, suggested research model has enough validity discriminate. Addition results, each variables has composite reliability more than 0,70. According to analysis all of the tables, traditional model of the Five Elements theory for interaction liver and kidney function through blood as mediator became change.

Keywords: five element model, liver, kidney, blood

INTRODUCTION

The theory of the Five Elements on Traditional Chinese Medicine (TCM) was based on the idea that everything in the universe was the produce of movement and change of five basic elements namely Wood, Fire, Earth, Metal, and Water. Liver represent Wood and Kidney represent Water. In TCM, Five Elements theory has had a major influence in diagnosis, treatment, pathology, and physiology. In Chinese philosophy, the interaction of the Five Elements explains the nature of all phenomena. This element was not actual matter, but concepts. Often, this has made it difficult for the Western doctor to incorporate Chinese theory into a practice that is based on matter. (Schoen, 2001; Saputra, 2002).

Placing these elements on a circle makes it distinct cycles of the elements are used in diagnosis and treatment. The Sheng cycle means one of creation or production. A certain element will create another one to its right in a clockwise fashion. That, in turn, produces the next one and so on around the cycle. Therefore, Water produces Wood, and Wood produces Fire. More specifically, Wood was produced from Water, as vegetation needs water or moisture to grow. It is common to use the terms Mother and Son. Using these term, then, Water would be Mother of Wood, and Wood would be Son of Water. (Jie, 2002).

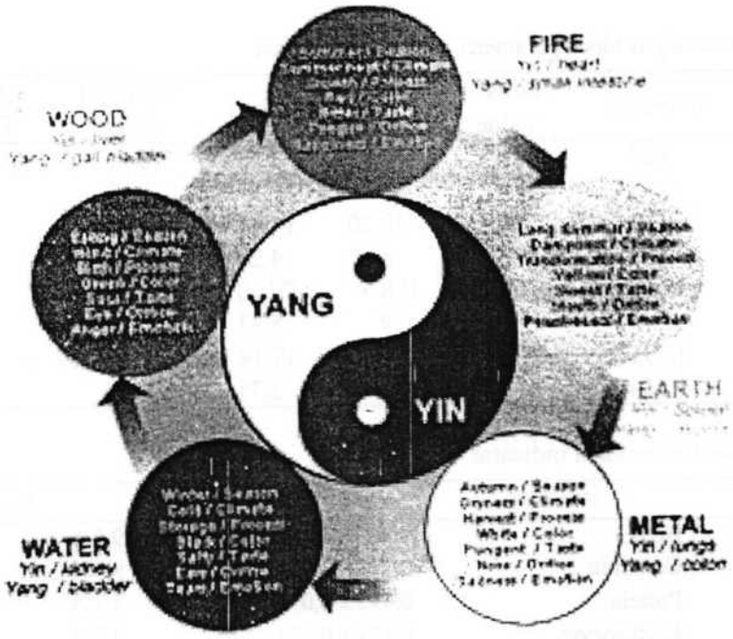

Figure 1. Five Elements model according to Traditional Chinese Medicine
Source: Anonymous, 2012

Purpose of the research was developed TCM model especially in its interaction of liver and kidney function through blood using equally parameter.

MATERIALS AND METHODS

Population Kacang Goat (Capra sp.) consists of 15 males and females were administered blood samples 5 cc each. Blood was obtained on SGOT, SGPT, total erythrocyte, PCV, Hb, BUN, creatinin, and protein.

SGOT and SGPT was construct variable of liver function, whether BUN, creatinin, and protein was construct variable of kidney function. Therefore, variable construct of blood was total erythrocyte and PCV (Sudirman, 2006; Soeharsono, 2008).

Model was evaluated through loading factor analysis, average variance extracted value (AVE), Cronbac'h Alpha, and t test. Model was significantly difference if loading factor more than 0,5; AVE value for each construct variable > correlation between construct; Cronbac'h Alpha ≥ 0.70; and $t_{statistic} > t_{table}$ on á = 5% (Ghozali, 2008).

RESULT AND DISCUSSION

Analysis of the Table 1 and Table 2 was shown outer loading factor on all indicator value more than 0,5 and t_{test} more than 1,96. Both blood analysis supports that all variable was valid indicator as equally variable. Similar result when comparing analysis on Table 4 and Table 5. Evaluation to the inner model structure shown both liver and kidney as free variable, whether dependent variable was blood. Analysis coefficient value was shown on Table 4 supported determinant value model was 0,47 after calculated on $(1 - (1- R^2_{Kidney})(1- R^2_{Blood})$.

Table 1. Descriptive analysis blood parameter of the Kacang Goat

	n	Intercept	Lower Value	Upper Value	Mean	Standard error	Standard Deviation
Hb	15	7,82	2,43	10,25	8,03	0,51	1,99
PCV	15	9	10	19	14,78	0,63	2,45
Erythrocyte	15	9,14	10,06	19,20	14,38	0,67	2,60
SGOT	15	2,17	3,14	5,31	4,20	0,14	0,54
SGPT	15	79	29	108	76,00	5,50	21,43
Protein	15	13	6	19	8,73	0,79	3,058
BUN	15	13,95	13,13	27,08	17,09	0,88	3,42
Creatinin	15	10,64	,60	11,24	2,75	0,78	2,93

Table 2. Loading factor for each indicator

Variable	Indicator	Outer Loading	$t_{Statistic}$ *
Kidney	BUN	0,871 ± 0,091	9,535
	Creatinin	0,779 ± 0,082	9,476
	Protein	0,495 ± 0,013	3,785
Blood	Erythrocyte	0,575 ± 0,160	3,595
	Hb	0,955 ± 0,017	55,698
	PCV	0,924 ± 0,054	17,041
Liver	SGOT	0,916 ± 0,034	27,132
	SGPT	0,955 ± 0,007	132,669

* comparison on t_{table} = 1,96 on α = 0,05

Table 3. Value of Composite Reability, AVE and √AVE

Variable	Composite Realibility	AVE	√AVE	Correlation between Latent Variable	
Kidney	0,768	0,537	0,722	Kidney-Blood = 0,438	Kidney-Liver = 0,409
Blood	0,869	0,876	0,936	Blood-Liver = 0,552	Blood-Kidney = 0,438
Liver	0,934	0,699	0,817	Liver-Kidney = 0,409	Liver-Blood = 0,552

Table 4. Coefficient Determinant of Variable

Variable	Coefficient Determinant (R^2)
Kidney	0,000
Blood	0,340
Liver	0,192

Table 5. Interaction between variable, coefficient of row, and $t_{statistic}$

Interaction between Variable	Coefficient of Row	$t_{statistic}$	Result*
Kidney – Liver	0,207 ± 0,109	1,892	Insignificant
Kidney – Blood	0,462 ± 0,105	4,385	Significant
Blood – Liver	0,438 ± 0,102	4,309	Significant

* comparison on t_{table} = 1,96 on α = 0,05

AVE value for all variable i.e. kidney, liver, and blood, respectively, was more than 0,5 and √AVE > correlation between variables, suggested research model has enough validity discriminate. Addition results, each variables has composite realibility more than 0,70 as seen on Table 3.

The basis for Zhang – Fu Syndromes is an understanding normal function of each of the 12 primary organs within the context of TCM and a knowledge patterns that may result when these functions are adversely affected (Lim, 2010; Kabalak *et al.*, 2005). Each Zhang (Yin) organ was paired with a Fu (Yang) organ in a complementary, mutually supportive relation. Diagnostically and therapeutically, one can classify disease patterns by the Zhang-Fu organ system affected. Liver has several functions, namely, govern the smooth flow of Qi, strongly influenced and affected by emotional state, controls the tendons and ligaments, store the blood and regulates its distribution to tissues, and opens into the eyes. Whether kidney has functions, namely, governs water, produces marrow (including brain and spinal cord), controls the bones, stores the essence (the basis for all the body's Yin and Yang), opens into the ears, and delivery dirty water off the body through urinary tract (Pan and Zhou, 2005; Poernomo, 2005).

According to analysis all of the tables, traditional model of the Five Elements theory for interaction liver and kidney function through blood as mediator was shown on Figure 2.

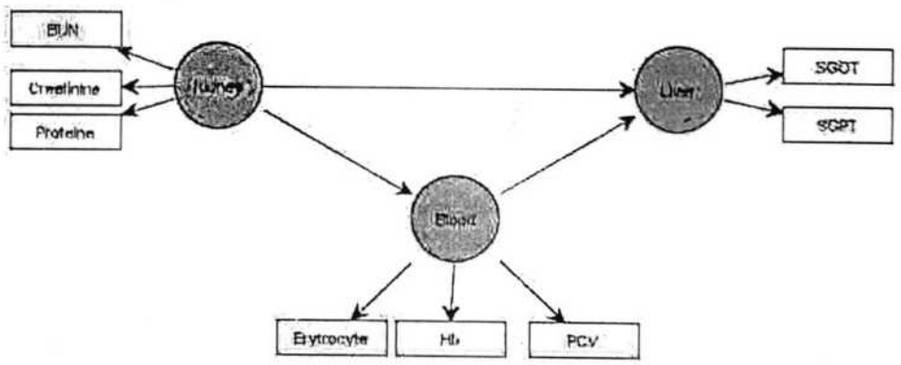

Figure 2. Empirical model for interaction liver and kidney function through blood as mediator

REFERENCES

Anonymous, 2012. http://www.acupuncture.com/picture (download on April 15, 2012)

Jie, S.K., 2002. Dasar Teori Ilmu Akupunktur. Cetakan ke 2. PT Gramedia Widiasarana Indonesia. Jakarta. Pp 14-96.

Kabalak, A, A., Akcay, M., Akcay, F., and Gogus, N. 2005. Transcutaneous electrical acupoint stimulation versus ondansetron in the prevention of postoperative vomiting following pediatric tonsillectomy. The Jour Alter And Compl Med. 11 (3): 407 – 413.

Lim, T,W, 2010. Meeting Traditional Chinese Medicine's Qi and blood circulation ideal with a new evidence-based light therapy method. Mediclights Research Inc., Toronto, Canada. 1- 27.

Pan, J. G and Zhou, M.C, 2005. Modeling and Analysis of Meridian Systems Using Petri Nets. Inte Jour Intel Cont and Sys.: 10(3): 226 – 234.

Poernomo, B., 2005. Embryonic Correlation between Genital Organ, Intestine, and Kidney toward Human Acupuncture Points. In Development of Traditional Chinese Medicine and People's Health. Publishing House of Ancient Chinese Medical Books. Beijing. Pp. 550-551

Saputra, K., 2002. Dasar Pemikiran Fenomena Keseimbangan Akupunktur dalam Dunia Kedokteran. In Akupunktur Klinik. Saputra K. (Editor). Universitas Airlangga Press. Surabaya. Pp 1-8

Schoen, A. 2002. Veterinary Accupuncture. Ancient Art to Modern Medicine. Mosby. St Louis. Pp. 21-91

Soeharsono. 2008. Peran Kanal Ion Na, Ca dan K dalam Mekanisme Analgesia Akupunktur Titik Zusanli pada Tikus Putih (Rattus norvegicus). Disertasi. Program Doktor Ilmu Kedokteran Kekhususan Biomedik. Program Pascasarjana. Universitas Brawijaya. Malang.

Sudirman, S. 2006. Pengaruh Calcium Channel Blocker L dan N pada Akupunktur Analgesia. Disertasi. Program Pascasarjana Universitas Airlangga. Surabaya.